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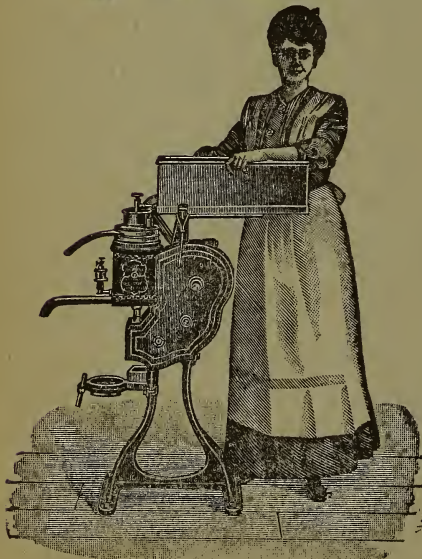
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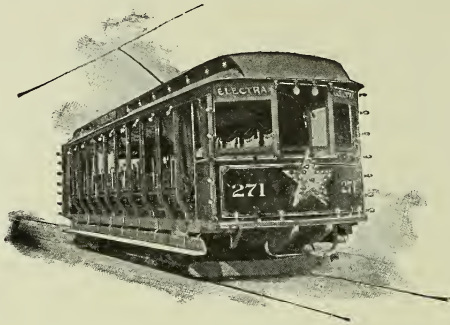
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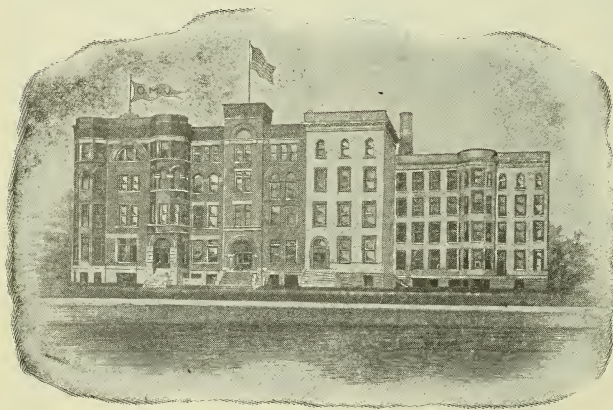
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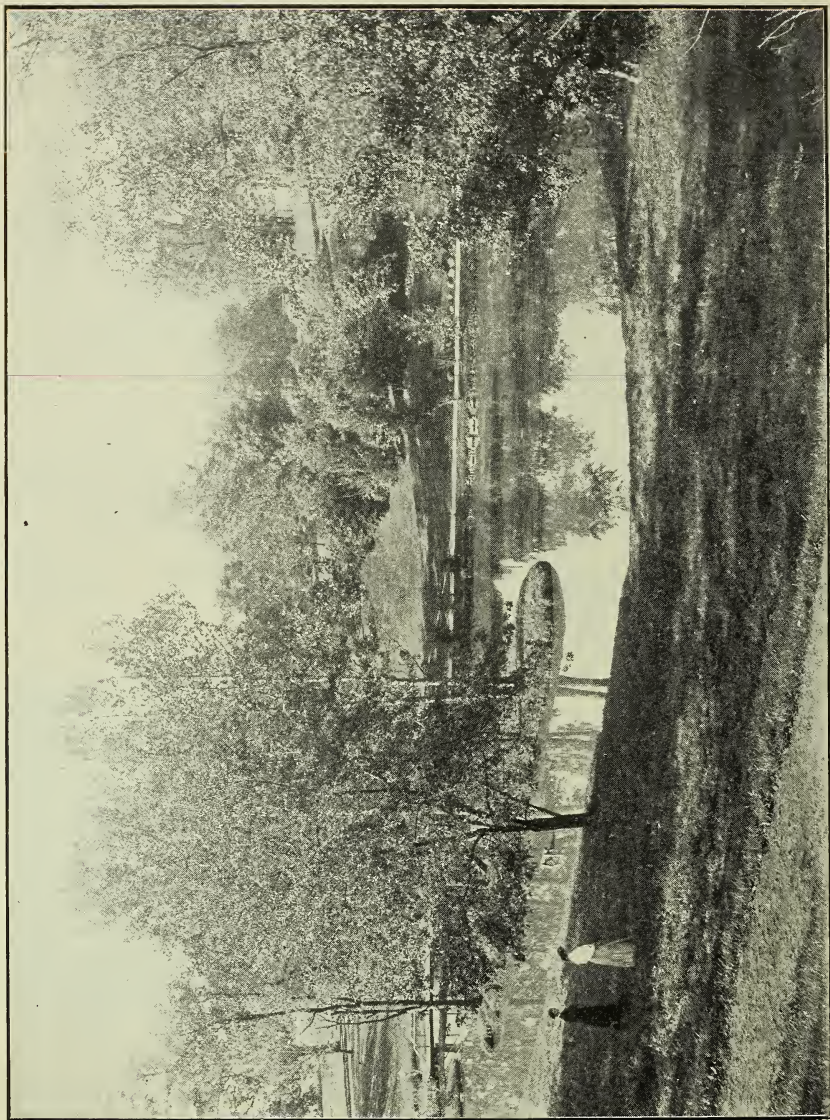
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Mirror Lake O. S. U. Campus, looking down from the Observatory,
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THE AGRICULTURAL STUDENT.

VOL. XII. OHIO STATE UNIVERSITY, COLUMBUS, JANUARY, 1906 No. 4

TERMS OF SUBSCRIPTION:

One Year.....	\$0.50
One-half Year.....	.30
Single Copies.....	.05

While this magazine is published with the approval of the President of the University and the Officers of the College of Agriculture and Domestic Science, the editors are responsible for the statements in all unsigned articles.

Address all communications to the Business Manager, Agricultural Student, Columbus, Ohio.

Entered at the Post-Office, Columbus, Ohio, as second-class matter.

PUBLISHED MONTHLY BY

THE AGRICULTURAL STUDENT PUBLISHING COMPANY.

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CONTENTS

Editorial Comment	67
A Natural Hybrid in Wheat	69
Thoughts for the High School Student	69
Early History of the Ohio Experiment Station	71
Annual Meeting of the Students' Union	72
Notes from Lumber Camp.....	72
State Grange Convenes	73
The Township High School	74
State Farmers Institute Meets	75
The Angora Goat.....	76
The Ox Warble.....	77
Agricultural Society Meets	79
Farm Practises in Western Kansas	80
The Production of Maple Sugar....	81
Late Bright or Rot of Potatoes—a Warning to Potato Growers	83
O. S. U. Grange Meets.....	84
Colorado Practicing Forestry	84
Grange Extension	85
Alumni Notes.....	86
Agricultural News.....	86
University News.....	87
Book Reviews.....	87

EDITORIAL COMMENT

Some time ago we had the opportunity of viewing that wonderful work of art, "The Man With the Hoe," and it left us deeply impressed—or more properly speaking, depressed. To any one who knew absolutely nothing of country life it was indeed a masterful production. The old gentleman in silk hat and frock coat, apparently a connoisseur, and who was viewing this work also, remarked to the little boy at his side: "Here, Willie, is the farmer tilling his fields. You have read in your book how the agriculturist hoes his corn and pulls the weeds in their season."

What do such pictures mean to right-thinking people we wonder? And what are the impressions of farm life derived from such source? The "man" looked as though he might, in years past have had a fixed home, but since, degeneration had set in and it would take Huxley himself to tell whether this creature belonged to the species *Anthropidæ* (man), or was this at last the "missing link?" And the "hoe"—well, we shall merely accept the artist's statement for that, but it might easily be mistaken for some ancient form of battle-ax.

There are a great many more relics regarding farm life, such as notions, customs, farm practises, and they are not confined to the city alone; but they are just as obsolete as the above and when looked at in the present-day light are as worthless and trashy as the "yesterday's" papers with their out-of-date "hey Rubes."

Americans are a serious people who boast of the best government on earth and build bonfires when they succeed in electing an honest man to office.—"Poor Richard," Jr., in Saturday Evening Post.

What we are about to say may be ancient history by the time it gets into circulation. No matter; it will apply as well then as now. But have you stopped to think what great odds the men in the students' judging contests at Chicago have to contend with? The rules of this year's contest will be found elsewhere in this number. Suppose there are ten colleges represented each by a team of five and that these fifty men are judging a class of four sheep. They have only fifteen minutes in which to examine and place the four animals in the ring. Each fellow must have a "feel" of each sheep. It would not be surprising if, when the quarter-of-an-hour limit was called there would not be enough wool left on the backs of those sheep to cover up the bare patch on the top of "Uncle Ned's" head. For what else could you expect under the circumstances? If you have been a stock-judge at the county fairs, if you are a farmer, a student at an agricultural college or if you are anybody else, don't knock because your college fails to win either or both of the trophies. Your team is all right and they will do their best. They will come nearer winning that trophy than you could and you know it.

In our December issue the following statement was made: "Dr. Dan Black owns the only good Clydesdale in Ohio." Now for some mysterious reason the word "stallion" was omitted and because of this omission our veracity might be questioned. It should have read, "Mr. Dan Black owns the only good Clydesdale *stallion* in Ohio." And when we remember that Ohio is not very friendly toward this breed, and what the word "good" signifies in comparison with some of the winners at the International, the correctness of the statement would seem to be obvious.

"The kentry's a-gorin' to th' dorgs!" So spoke a precinct oracle in one of our western towns. Why, he did not know, but he "thought is was politics." Now our friend was right in one way; it was politics. We say *was*, not *is* nor *shall be*, because that condition does not exist to-day, speaking of the country as a whole, nor can even the most pessimistic predict such a failure. We have recently had a few "awful examples" but with the return of reason our voters have driven from them like chaff before the wind, that double-headed monster, political corruption, with one head labeled graft or self-interest and the other bossism.

Poor vaunt of life indeed,
 Were man but farmed to feed
 On joy, to solely seek and find and feast;
 Such feating ended, then
 As sure an end to men;
 Irks care the crop-full bird? Frets
 doubt the maw-crammed beast?

Rejoice we are allied
 To that which doth provide
 And not partake, effect and not receive!
 A spark disturbs our clod,
 Nearer we hold of God
 Who gives, than of His tribes that take,
 I must believe.

Then welcome each rebuff
That turn's earth's smoothness rough,
Each sting that bids nor sit nor stand,
but go!

Be our joys three parts pain!
Strive, and hold cheap the strain;
Learn, nor account the pang; dare, never
grudge the throe!

—Browning.

A Natural Hybrid in Wheat

CHAS. E. SAUNDERS, PH. D.

In the summer of 1903 the writer observed two unusual heads of wheat growing in a plot of Polish wheat on the Central Experimental Farm at Ottawa, Canada. The heads were not only quite distinct from those of Polish wheat but also from those of any other variety growing on the farm. The obvious inference was that a natural hybrid had been produced. In order to discover whether or not this was the case the single plant to which the two heads in question belonged was pulled up when ripe, just before the harvesting of the whole plot. Rust had prevented the proper development of the kernels, so that only a few were found that were fit to sow. These were sown the following spring in a little group by themselves four inches apart each way. Only four plants grew with sufficient vigor to produce properly developed heads, but their character left no doubt as to the hybrid nature of their parent.

The parent plant and the four seedlings all had long heads with glumes of a straw color and of a large size, their size being about intermediate between those of ordinary wheats and those of Polish.

The parent plant was bearded and had smooth chaff. Of the four seedlings, one resembled the parent somewhat closely, the second had also smooth chaff and awns, but the type of the head was quite different from that of the parent, being

thin and spilt-like, with the spikelets set very far apart, the third also was bearded but had downy chaff, and the fourth was beardless with smooth chaff, the heads being very long and narrow. It was observed from these descriptive notes that the four seedlings were distinct from each other.

Taking all the facts into consideration, it seems quite clear that the original plant discovered in the plot of Polish wheat was a hybrid between Polish and some other variety.

So few cases of undoubted natural crosses in cereals are on record that it seemed worth while to publish these particulars in regard to this striking instance.

Thoughts for the High School Student

BY JOS. E. WING.

First as to the seriousness of life. I would impress you with the truth that a quiet, determined seriousness of manner and purpose is essential to the development of character and the accomplishing of results. I want each girl and each boy to feel that he has a mission in life, that he can, and will, make the world he lives in a better place for having lived it in. I want each girl to feel that she will make the world better and will make others better for having known her, for having seen her. To be serene, to be serious, to be calm, to be ready and willing to smile, but not giggle nor shout. The world is a serious place, but after all it is a place where the sun breaks through the clouds and warms things; it is a place where the snow and frost are hiding buried treasures and where spring follows winter and then come the green and growing things upon the earth, with smiling skies and tempests of rain alternating.

The world is a serious place but not a sombre place, no place for weeping or despair. Nor need any of you try to-

shoulder upon you very great responsibility for the management of the universe. Just let the sun shine and be glad. Just let the rain fall and hoist an umbrella if you can. When you can, think of the cow that stands all day long in the drip and chews her cud with gratitude. Just go on cheerily doing your own best and know that after all you are but atoms of dust in the universe, that you can catch the sunlight and lighten the dark places of the world, or can carry with you bacteria that will infect the universe with the microbe of despondency and degeneration.

Let me impress upon you one thing. Each girl in this company may be a queen and a princess and has a right to be. She has a right to be pure and good and serene and silent and sunny; she has a right to be such that men looking upon her will be glad that they live and that she lives and will be better men for the sight.

And every boy has the right to be strong and brave and manly and cheery and helpful, and above all things to be honest. The world needs such boys, and it needs such women too.

If I were a boy today I would make a specialty of two or three things. They are old things, but yet they are new and they have been neglected. They will bring to any boy who will learn to do them, fame and fortune. They are fortune in themselves. I would make it a point to be honorable and honest. I would be unflinchingly honest. I would refuse to cheat or to let others cheat for me. I would resolve never to trifle with my own conscience, to make my life so honest that my own soul would approve and I would have nothing on my mind that I wished to forget or explain. I would refuse to be dishonest with those who cheated me. If I felt that the rich man I worked for was dishonest, that he

withheld from me some part of what I earned, I would be just as honest in doing my duty toward him, but I would maybe look for a better man to work for. This honesty becomes a habit after a while. It will pay. Oh, it will richly repay you. It is good business. It is sure to be better business as time goes on for such things are sure to be more and more esteemed. There is our beloved president. His honesty is one of his strong points. It is his honesty that added with his great courage and his power of endurance makes him the wonderful man that he is.

Now the next thing that I would cultivate if I were a lad again would be a love of work. Work is good. Work makes us happy when we learn to do it well. Learn then to work. Form the habit of work. Do it cheerily.

And the third thing that I would cultivate is cheer. Learn to smile. Learn to pass along this habit of cheer. I do not mean that you should be frivolous. I do not mean that you should be hilarious. Despondent men are hilarious and frivolous often enough, but only a strong, courageous soul can be cheery. Cheer is a habit, too, and it helps immensely. There is a very curious thing about the habit of cheer. Smile, if you wish to feel better! Try it! Don't wait to feel happier to smile, but smile and see if you don't at once feel happier. There is no reason for despondency in this world. It is a good world, with sun and breeze and birds and flowers and a sweetheart for every fellow who deserves one. You will die some day, but smile up to that time, and for all you know you will continue to smile after you have passed the barrier. The fourth thing that I should cultivate is courage. I can help you to this courage; it is easily attained. Let us say that there is a thing that you should do, but that you fear to do. How

are you to gain courage to do it? Well, let's first get some knowledge of how to do it. Then when we have that necessary foundation just sail in and do it. Then you won't be afraid any more to do that thing. And the next task that inspires you with fear treat in the same way. The cure for fear is to do the things that you are afraid of. Now if you can attain to these simple but priceless traits, honesty of character and purpose, love of work, cheer, which makes work easy and makes men love you, and courage, you have every characteristic necessary to make you a successful man, a useful man and a happy man. Don't worry about genius. Genius is the capacity to take infinite pains.

Early History of the Ohio Experiment Station

PROF. W. R. LAZENBY.

The Ohio Experiment Station has the following history: Early in the year 1882, and in response to a demand made by the intelligent farmers of the State, Colonel J. H. Brigham, Master of the Ohio State Grange, and Senator from the 33d Assembly District, introduced a bill for its establishment. The object of the station as stated in the bill was "for the benefit of the interests of practical and scientific agriculture, and for the development of the vast agricultural resources of the State."

The bill was passed April 17, 1882. A few days thereafter, in accordance with its provisions, Governor Charles Foster appointed three members of the Board of Control. There appointments were as follows: W. I. Chamberlain, representing the State Board of Agriculture; Nicholas Ohmer, representing the State Horticultural Society; and Emmett Mix, representing the State Grange.

These members of the Board of Control were called together April 25, 1882, and effected an organization by the election of officers and the appointment of Prof. William R. Lazenby as Director.

The Trustees of the State University at Columbus, having offered the free use of so much land as might be needed for field experiments, together with the use of laboratories, collections, implements, etc., necessary to carry on the appropriate work, the station was located at the University.

Realizing that the enterprise was solely for the benefit of the farmers of the State, the Director prepared a brief circular of information which concisely stated the object of the station, the work it was prepared to do, and the privileges it offered. Before planning any definite series of experiments representative farmers in different sections of the State were asked for advice and suggestions; the object being to find out as nearly as possible what the farmers of Ohio most needed to know.

Nearly all of the letters thus sent out were promptly answered, and whatever measure of success was attained during the early years of the station, was largely due to the kindly interest shown by the practical farmers of the State.

During the first year the working staff of the station was as follows: Director, W. R. Lazenby; Chemist, N. W. Lord; Botanist, W. S. Devo; Superintendent of Field Experiments, W. B. Alwood; in addition to the above, W. J. Green was appointed Horticulturist at the beginning of the second year.

When the Ohio Experiment Station was established there were only three stations in the United States. The first was that of North Carolina, established in 1877; then came New Jersey, which was established in 1880, followed by New York in 1881.

The "Hatch bill," providing for an experiment station for each State and Territory of the Union, was passed by an act of Congress, approved March 3, 1887.

Annual Meeting of the Students' Union

The Students Union meets on January 5, 1906. Arrangements have been made to have out of town speakers present. The meeting will be held in the chapel. During two forenoons of the same week a corn school will be held in Townshend hall. Mr. Williams, from the Experiment Station, will assist in these meetings by showing the progress of corn breeding by illustrated lectures.

The corn show will take place as usual in the reading room at Townshend. Mr. Goddard is expected to judge the corn. Members of the State Board of Agriculture will be present at the corn show, as their annual meeting is held about this time.

Notes from Lumber Camp

JOSEPH H. GOURLEY.

The most important lumber trees in the eastern part of the United States are the various conifers and the white oak. Their widely different structure and use, however, would hardly warrant a comparison as to which is the most valuable any more than the widely different virtues of two great men.

It is rather surprising to note the amount of white oak that is being cut every month in our own state. One man, residing in a neighboring city, has the contract to furnish all the white oak railroad ties which are used on the Pennsylvania railroad between Pittsburg and Chicago, and naturally he gets as much as possible in Ohio to lessen the distance of transportation. To be sure, from the original owner down to the consumer large prices are exchanged for the lumber; but how long will it last? We all know the length of time required to mature the immense oaks, truly named the monarchs of the forest.

We are surely struck with awe at seeing an oak containing nearly three thousand feet of lumber lying prostrate—the work of the lumberman. During the last summer I saw one which had commanded a price of sixty dollars on the stump. But its time had come. It would be folly to let such a tree stand for any feelings of sentiment or in hopes of its increasing in size, as any further growth would be very slow and it is subject to numerous dangers, as being blown over and ruined, or by attacks of fungi and insects, or possibly fire, although danger from this latter cause is reduced to a minimum in this section of the country.

The lumberman distinguishes two kinds of white oak. The one has a rather fine, smooth bark, and the outward characteristic is evidence of the best type of commercial white oak. It is often termed “export” by those handling it. All railroad ties must be of this first grade lumber. The other type has a much heavier, rougher bark and the lumber is termed “brash.” The freshly sawed oak may present a pink tint and this is considered an indication of a good piece of lumber.

The white oak is more likely to be solid than any other of our commercial oaks. The black oak can also be depended upon. The pin or jack oak, *quercus palustris* is the most uncertain of our oaks to the lumberman, as it may suffer badly from the dry rot, or it may be perfectly sound.

An interesting fact about the white oak in the forest is the heavy growth of bark on the north side of the tree. This often serves as a compass to the experienced forester.

Another of our important lumber trees that is fast being cut away in our state is the tulip tree or yellow poplar. It is often found growing with the oaks and hard maple. Extensive use is made of it for siding, inside finishings and pat-

terns. It is the "white wood" that is often spoken of by wood workers.

The lumberman makes two types of this tree as he did in the white oak. One he calls the yellow poplar and the other the hickory poplar. The first has a heavy bark which stands out very conspicuously and would never be mistaken. The wood has a yellow tinge and is softer than the other. The hickory poplar has a much closer bark and the wood is white. It is very much harder than the yellow. This, I believe, cannot be based on any botanical difference; possibly some local condition causes the coloring, as the soil, for example.

In studying the sycamore or plane tree we find several objections to its use as a timber tree. It has a great tendency "to box," i. e., it will separate in concentric rings, following the line of annual growth. This makes that particular tree useless for most purposes. It grows in moist soil and therefore is a very soft wood and will warp about the worst of any of our woods.

It is also likely to be hollow, and care should be exercised if we have occasion to buy this tree on the stump. We may find a clump of them which are all of good size and quite solid. Trees of this kind will bring twelve to fourteen dollars per thousand. They are used extensively by the novelty manufacturers.

It is interesting to again note two distinct types of this species. One type has a white or yellow color and is softer than the second type. The other has a decided pink tint when freshly sawed and is the more valuable.

The bridge is human life; upon a leisurely survey of it, I found that it consisted of three-score and ten arches.—Addison.

State Grange Convenes

The annual meeting of the Ohio State Grange was held in the Board of Trade Auditorium beginning December 12 and ending December 14. On Wednesday the delegates were entertained in the University chapel during the hour of convocation, President Thompson delivering the address.

On Tuesday evening the first two degrees of this order were conferred upon candidates, the Canal Winchester team assisting in the first and the Westerville team in the second degree. This meeting was held in the O. S. U. gymnasium.

The address delivered before the Ohio Academy of Science, by Professor Osborn, in which he recommended a natural history survey of the Buckeye State, and in which he showed that Ohio was behind other states in this respect, is meeting with no small amount of worthy comment.

On a par with Professor Osborn's address was a paper read by Professor Cole, of the Physics department, treating on certain facts regarding optical experiments with electric radiation.

Of the officers of this society five are quite prominent faculty members of the O. S. U. Professor Osborn, last year's president; Professor Hine, treasurer; Professor Mills, librarian; Professor Schaffner, trustee and member of the board of publication; Professor Lazenby, member of the board of trustees.

There is this difference between happiness and wisdom: He that thinks himself the happiest man really is so; but he that thinks himself the wisest, is generally the greatest fool.—Colton.

The Township High School

PROFESSOR A. B. GRAHAM.

In the early years of adolescent life—from fourteen to sixteen—most boys and girls are thinking rather seriously about what their vocation shall be. There is no doubt but that fancy as well as common sense enters to a great degree in determining what field of work shall be entered upon. Teachers no doubt many times without intention, impress young men with the idea that our great men have been lawyers, physicians, scientists and generals. While this is all right so far as it goes, it does not go far enough. It shows what the work of the school does in making lasting impressions in the minds of children at a very impressionable age.

It should always be kept in mind that not every child reared in the country should be prepared particularly to become a farmer; neither should the school

courses be so arranged nor the instruction be of such a nature as to prepare the boys and girls for the so-called learned professions alone.

A few states have already made the teaching of elementary agriculture compulsory in the rural schools; in some the teachers must be prepared to be examined in this subject; in some the normal schools are offering courses in agriculture. The greatest danger in the elementary schools is that the work becomes text-book work to the exclusion of experimental exercises. The elementary school should present a foundation of facts gleaned from experience and observation for further work in the high school.

In algebra and geometry there is an opportunity to take up problems that come in farm work; in physics, chemistry and botany many of the illustrations, examples and problems can be selected from



Centralized School where Elementary Agriculture is Taught,
Trumbull County, Ohio.

the farm. Science has entered into agricultural work so much that there is little difficulty in applying a knowledge of physics and chemistry.

The best pastoral poems and prose selections whose settings are in rustic life should occupy a prominent place in any school course but they should in no wise exclude a general knowledge of literature. In the country home and school occasionally, there should be sung songs of the type of those on the last page of the bulletins issued by the Department of Agricultural Extension.

France and Belgium report that the time during which rural children attend school has been extended two years since agriculture and horticulture have been made a part of the rural school courses. In Ohio there are but a few over 6,000 country children attending high school in township, village, or city schools. There are in elementary township schools 235,000 children. Only about two and one-half per cent. of the entire rural school attendance is found in the high schools. There should be at least ten or twelve and one-half per cent.

This is not to be wondered at since a great many people say "My child will not be a teacher, lawyer or doctor; there is not the necessity for more than an elementary education." The child is being denied its birthright by a parent who places agricultural pursuits on the low plane of drudgery where brawn dethrones brains.

It is a fact that schools were established and endowed at one time to educate ministers who were also teachers; lawyers and doctors took their places in equal rank with the ministers in the college. Science in the last half century has been offering her sceptre to the brawn dethroned agriculturist that he might become the brain enthroned mas-

ter of the elements—each of which would liberally contribute to his comfort, culture and coffers.

The township high school leads the way with its teacher who emphasizes the beauties and pleasures of rural life, its course of study presenting subjects equal in cultural, disciplinary and utilitarian values to those already offered, and with its yards planted as an object lesson in landscape gardening and to furnish ample material for class work.

Over two hundred and fifty townships have already adopted elementary agriculture as a part of their course of study. About ten high schools have made it a part of their courses.

The commissioner of common schools has considered this work of such importance that he has decided that in grading high schools one-half unit of credit will be given for text-book work for one-half year when a science study such as physical geography or botany is given the other half year; if the necessary apparatus is purchased and used with the text on agriculture for the entire year one full credit will be given.

State Farmers Institute Meets

During the first week in January, 1906, the Farmers Institute for the State of Ohio will be held in the Board of Trade auditorium, Columbus, O. An exceptionally good program is arranged for and if you are interested in agricultural work you cannot afford to miss it.

So, Willy, let you and me be wipers
Of scores out with all men—especially
pipers.
And, whether they pipe us free, from rats
or from mice,
If we've promised them aught, let us
keep our promise.
---From "Pied Piper of Hamelin."

The Angora Goat

EDGAR C. RICHEY.

Any person who has been constantly in touch with the agricultural press must have noticed the discussions pro and con with reference to the Angora goat. Much has been said both of good and evil and it would no doubt puzzle many to know on what ground the Angora does really stand.

Before entering into any discussion of the merits or demerits of the Angora it would be well to glance for a moment at his history. The Angora is thought to have originated in Thibet, although it is not found in that country at the present time. They were introduced into Angora in Asia Minor from Thibet and here they have been bred in great purity. Numerous importations have been made from Angora and Turkey to the United States, although such importations are attended with great cost. The first importation into the United States was made by Dr. J. B. Davis in 1849, at which time he imported two bucks and six ewes. Others followed at frequent intervals, and these imported animals, either bred pure or crossed on the common goat, have produced our present supply of Angoras which number upward of 200,000.

In considering the desirability of any new breed or species of live stock the question naturally arises, are they adapted to our climate and to the food conditions found here? The Angora is not very choicy with regard to climate conditions, providing he has a good, dry stable. He seems to thrive in almost any climate in which he has been tried, unless we except the torrid and arctic regions. Testimonials are at hand which testify to the hardiness of the Angora from Georgia to Idaho, and from California to Maine. As has already been said the one requirement of the Angora is that he be

kept dry as his coat is of such a nature that when it once becomes thoroughly wet it will not dry out for a long time, thus causing its owner much discomfort and even disease.

As to food habits the Angora could almost be said to be omnivorous. He relishes all kinds of weeds, briars and leaves so much that it is said that he will not touch blue grass as long as he can get plenty of weeds. This statement may be a little extravagant, but it is an indisputable fact that they are great foragers, and are very valuable in keeping down obnoxious and unsightly weeds. Pictures have appeared at different times showing the effects of goating upon the land, or in other words, "before and after" goating. These pictures show beyond a doubt that goats are of great benefit to bushy land such as is found in some parts of our own state. It seems to me that our eastern Ohio hills might be greatly benefited by a few goats along with the other stock, for when one rides through this region he is impressed most of all by the bushy appearance of a large portion of the pasture land.

The care of goats does not differ materially from the care of sheep. They should be well housed and given sufficient grain and fodder to supplement the food which they secure from the range. Of course, in summer and autumn they do not require any additional feeding but when cold weather comes they will be the better for it. One thing that should not be overlooked in the matter of care is that of fencing. The goat is something of an acrobat and delights in climbing and jumping. The old fashioned worm fence still seen in parts of our state are a delight to the goat as he will walk on top of them for great distances. The woven wire fence of ordinary height will turn Angoras, as

will also the picket and the barb wire fences if they are made tight enough.

From a financial standpoint, other than weed destroyers, they are not much behind the sheep. They produce a fleece of mohair which is worth at least 75 cents, at the rate of 25 to 30 cents per pound. The value, of course, depend upon the quality, the most valuable being ten to fourteen inches in length and free from hairs. The first two or three crosses are not of any great value as fleece producers, but above that number they are well worth the attention which they require to secure the fleece.

The skin itself is of great value also, as many goat skins are used annually in American manufactories. At present the greater number of these skins are imported from other countries. The value of the skins used last year in this country was about \$25,500,000 and of this amount ninety per cent. or more went to foreign countries. Surely there is a fine opportunity for the Ohio farmer as well as any other farmer to take a part in this industry.

As a meat producer the goat is just about equal to the sheep. There is no separate class for goats in many markets but they are sold as sheep. Their flesh resembles mutton very much, except that it has rather more of a gamey flavor which is imparted to it from its wild habits and peculiar food.

When all is considered then it seems that the Angora goat might have a place in our agricultural operations. He can be made to turn a nice little profit while at the same time conferring a great favor on humanity. Even if we have no large tracts to clear, it would undoubtedly pay to give the Angora a trial for the purpose of clearing up fence corners and keeping in check all useless cumbrences of the soil.

The Ox Warble

(*Hypoderma Lineata*, Villers.)

S. H. SHAWHAN.

(Condensed from Bulletin No. 5, new series, Division of Entomology.)

The bot-flies of cattle are divided by entomologists into two species, the *Hypoderma bovis* or warble fly and the *Hypoderma lineata* or heel fly. "In certain points of life history and habit the two species agree. The adult flies are about half an inch in length and bee-like in appearance. They are, so far as known, closely confined to the ox or nearly related species, *lineata* being regarded as a parasite of the buffalo as well as the ox." Instances are on record of the occurrence of this parasite on man, but such are exceptional, the species being restricted almost wholly to bovine animals. *Lineata* is generally regarded as the species found in this country, though it also occurs in Europe, while *bovis* is the species found in Europe and the one that first studied.

To combat this insect successfully, a knowledge of the life history and habits is necessary.

The egg, including the clasping base, is very small, being about 1 mm. long and 0.2 mm. wide at the greatest diameter. It is of a dull, yellowish white color and the surface is smooth and shiny. The base of the egg is made up of two lips or valves which close over the hair and thus give it a very secure attachment. The larva passes through four stages, continuing through a period of several months. When first hatched it is very small, of a dull white color and the surface from the second to twelfth joints covered with short and dense spines. The mouth parts consist of two dark, crescent-shaped hooks, the upper part of which projects, and two long supporting rods, on the tips of which the hooks articulate. The larva continues to grow through the

second and third stages and in the fourth stage it attains a length of from three-fourths to one-inch and is of a grayish white color.

As soon as it bores out through the back of the animal, the larva falls to the ground, where it may meet an obstruction, under which it crawls and burrows one or two inches below the surface. Here it remains as a pupa for about a month and then emerges as a fly.

Many think that the flies bite or sting the animal and that the eggs are either deposited beneath the skin of the animal or that the larva hatches and burrows its way into the hide. But it has been shown that for *lineata*, at least, that the eggs are deposited on the hair, often around the heel (from which the fly receives its name) and the animals licking themselves, remove the capsule of the egg and convey the young larvæ into the mouth, where they make their way in between the walls of the gullet. Here they remain for several months, when they finally make their way up to the skin along the back (just the passage taken has not yet been worked out) where they hollow out a place beneath the skin. After making a small hole through the skin to admit air the larvæ are large enough to be felt by the hands. From this time they develop rapidly for three or four months and are usually ready to leave the back of the animal some time in April. As the larvæ are often nearly an inch long and sometimes an eighth of an inch in diameter, one can imagine the food required by the larvæ and the ulcer that is formed. This must result in a great deal of pain and uneasiness to the animal, as well as a loss to the hide and milk and also to the flesh and a deterioration in the quality of the meat.

The fly occurs in all parts of the United States, but is most troublesome

in the southern portion, and extending north to Illinois, Iowa and Nebraska.

A report in 1889 showed the percentage of cattle affected by grubs for the principal stock-raising states of the Mississippi Valley, of which the following are a few:

Ohio	56%
Indiana	48%
Missouri	57%
Illinois	73%
Iowa	71%

Besides the loss on hides there is, as before stated, the loss in milk and beef. We have all seen cattle feeding peacefully, when suddenly they would throw up their heads and run as if mad, thereby using up flesh and milk in exertion and excitement besides losing the opportunity to feed which is essential to growth or production of milk. "This source of injury, however, lasts but a few weeks during the summer and probably does not compare with the loss due to the presence of the maggots. Omitting the creatures' comfort as a matter of mere sentiment and considering the question from the practical standpoint of money returned, it requires only the very modest estimate of the loss of one dollar per head to the cattle of the United States to show a loss of about \$36,000,000 sustained by the country on the basis of the census of 1880, doubtless between fifty and sixty millions at the present time. If we take the estimates as a whole, it is evidently a modest estimate to consider the losses from the different sources of injury to hides, loss in milk and beef, and lessened vitality to be \$2.50 per head of cattle for the whole United States, making a grand total of \$90,000,000 on the basis of the census of 1880."

Professor Osborn says there is no excuse for the continuance of the fly, but by simple and inexpensive methods it can

not only be wholly prevented from year to year, but practically exterminated from the country, thereby avoiding both the loss and the trouble of applying remedies in the future. He suggests several simple and inexpensive remedies.

As we know that during nearly three months of the year the insect occurs in no other place than in the backs of cattle, it is evident that the destruction of all grubs in the back of every animal between January and April must result in the extermination of the pest. The insect is open to attack in at least three ways: "(1) Measures to prevent the deposition of eggs; (2) measures to destroy the eggs or young grub; (3) measures to destroy the grubs after passing under the hide."

"To prevent the deposition of eggs the application of some persistent sticky substance may be recommended, or this may be combined with some substance of obnoxious smell." A preparation or mixture of sulphur, 4 ounces; spirits of tar, 1 gill; whale oil, 1 quart, applied to the back once a week is said to be effective.

As soon as the warbles become large enough to be felt by passing the hand along the back, and at this time a little kerosene rubbed into each one or an application of mercurial ointment will destroy the grub, which rests with the breathing pores directed upward to secure a supply of air through the opening which connects the cavity with the outer surface. If these measures are taken while the grub is small the sore heals up and the hide becomes perfect, and the drain on the vitality of the animal is also stopped.

Prof. Osborn, in closing his article, says: "We can not close this sketch of remedies without presenting a plan which, though it may be styled fanciful or ideal, must if carried out result in the

extermination of the pest and a saving, we believe, of not less and possible more than \$50,000,000 per year to the farmers of the United States."

"Let every man owning kine of any grade be posted by a general proclamation inserted in every newspaper in the land that in a certain winter, he is to examine every animal in January and apply kerosene or mercurial ointment to all lumps discoverable on the back from the neck backward, and down halfway on the ribs; that in March or at the latest before the middle of April he must go over every animal again, and press out and destroy any warbles remaining. Then the following winter if any warbles are to be found to repeat the processes. This with the destruction of grubs in all cattle imported from other countries, must prove successful. Even if a few escaped by the neglect of some shiftless stock owner or by accidental oversight in searching for them, the result would repay over and over again, and for many years, the grand effort of that year."

Agricultural Society Meets

The December meeting of the Agricultural Society was held in Townshend hall on the evening of December 6. Mr. C. G. Williams, of the Ohio Experiment Station, Wooster, was the speaker of the evening, his subject being, "Experiments in Corn Breeding."

The next monthly meeting will be held on the first Wednesday of February.

The annual meeting of the Society for Scientific Horticulture will be held in connection with the meeting of the American Association for the Advancement of Science, in New Orleans, during convocation week, December 28-January 2.

Farm Practises in Western Kansas

C. D. HYATT.

We have been through several counties in the middle west of Kansas and on one farm only have we seen the prospective wheat field fertilized. This land was owned by an old Pennsylvania Dutchman who had come to the West within the last year, and it is probable that the habit of saving all the barnyard manure had grown so strong upon him back on his little eastern farm that he could not bear to see fertilizer, in any form, going to waste. Men who had grown wheat successfully in these parts for a score or more of years warned him against the use of manure, as this together with the dry weather would burn up his crop. How our friend will come out with his crop we do not know, but we think that there will be no great difference either way, as his field consisted of a half-section and at that time he had between two and three acres fertilized.

The stacks of manure going to waste or in some cases where it is thrown down over the river bank, or into draws—all this looks strange to the eastern man. Farmers will move their barns rather than haul out the manure, as they claim after long years of experience, that it is a detriment to their crops in these parts. Still it is thought by some of the more observant of men that they will see the time when fertilizers in some form, owing to the increased rainfall, must be added; that it is a parallel case to that of Iowa where the soil was once thought to have been inexhaustible but, through successive croppings of wheat and no additions of fertilizer, a point has now been reached where fertility in some form must be added. How soon this time will come, if ever, is a matter of conjecture for we know that it is unsafe, at present, to add fertilizers and we doubt, after looking up statistics on the subject, if the rainfall has increased to any appreciable extent,



Turning Over Prairie Sod by Steam Power, Western Kansas.

but we do know that the hot winds are less severe and less frequent.

The preparation of the seed-bed for wheat has heretofore been very simple. Time was when the ground was plowed, on an average, once every five years, and this is true of certain localities today. But the better class of farmers now say that the more plowing you do the better; also more thorough plowing and in these respects they are adopting eastern methods. The plowing is nearly all done by gang plows turning two or three furrows each and run either by steam or horse power. So large is the acreage sown to wheat each fall that about one man out of every dozen owns a threshing outfit, and the engine he uses to pull his gang plows, four to six to each engine. In this way two men, one to run the engine, the other to haul water and sometimes a third as general chore boy, can easily plow twenty-five acres per day.

A source of income from the wheat aside from the grain is the use of the field as pasturage. After the young shoots come up in the fall and the fields begin to look green live stock is turned in and often kept there till late spring; and the man who owns five-hundred acres of wheat and gets one dollar per acre as rent makes a nice little margin and at the same time, one year with another, is not damaging his future wheat crop in the least.

There are three methods of harvesting now in vogue: the self-binder, the header and combined header and thresher. The last two are not used except in the western part of the wheat belt, as there the air is so much drier and the grain can be headed and stacked without fear of spoiling. But farther east it has to be dried out in the shock. Threshing begins as soon as the grain is cut and often

lasts the greater part of the winter. Inter-
erant threshing is not practised as in some of the eastern states. All that the farmer has to do is to haul away the grain which is often no small task, especially when the machine turns out twenty-five hundred bushels per day, and this is no record by far for a Kansas thresher.

The honest heart that's free from a'
Intended fraud or guile,
However fortune kick the ba'
Has aye some cause to smile.
—Burns.

THE PRODUCTION OF MAPLE SUGAR

The Bureau of Forestry Seeks to Develop and Extend the Industry

The Bureau of Forestry has been studying the maple sugar industry with the view of securing a larger use of the maple forests. Since 1850 the area of maple sugar farming has greatly changed and shrunk. In early days maple sugar was commonly made, even in many parts of the south, because cane sugar was virtually unobtainable. No longer is there even a limited production in South Carolina, Georgia, Alabama, Mississippi, Louisiana, and Arkansas. This is because cane sugar can now be bought everywhere at a low price, and is preferred to maple sugar for sweetening. In Indiana, Michigan and Illinois the maple trees have been extensively cut for lumber, thus reducing the opportunity for tree tapping. In those states also the markets are glutted with imitations, which removes the incentive to extending the industry. In other states, as in western Maryland, West Virginia, Ohio, New York, and in New England, the maple sugar industry has held its own or been increased.

The best sap flow is secured in the cooler northern states, yet good results can be expected in most of Pennsylvania and West Virginia, in western Maryland, all of Indiana and Kentucky, eastern Tennessee, and western North Carolina. At present the largest producers of sugar maple products are Ohio, Vermont and New York. The sugar and black maples yield the most and the best sap, although some other species of maple may be worked to advantage when neither of these is available.

The maple is a hearty and vigorous tree and readily reproduces itself, so there need be no fear of failure of sap supply. For sap production the all important consideration is for the tree to have a full and heavy crown. Yet it should also grow under forest conditions which maintain a ground cover of litter and humus.

As a result of the study recently made, definite directions for the management and improvement of existing groves, and for the establishment of new ones in suitable localities and under different conditions, have been prepared and will soon be published. Many valuable data regarding the profit in making maple sugar were also collected. From these it appears that a farmer can easily clear about \$3 an acre from a sugar grove. The expenses in this estimate are placed at a maximum; all the labor and hauling are charged at market rates, though as a matter of fact the sugar season falls at a time when the farmer has little other employment for himself or his horses. In actual practice, for the farmer who can do most of his own work the profit should be considerably larger. And the land thus utilized will yield little or nothing under any other use.

The old method of collecting the sap by making a diagonal cut in the tree was abandoned long ago because it injured

the tree so that it could be worked for but a few years. The approved practice now is to bore a hole one inch deep and three-eighth of an inch in diameter into the sunny side of trees over twelve inches in diameter, and to make but one hole in each tree, except possibly where the trees are specially large and productive. Vast improvements have also been made in appliances for handling the sap and boiling it down to sugar and sirup.

Maple trees now furnish but a small per cent. of the commercial maple sirup and sugar. While the demand for both these commodities has constantly increased, the output from maple trees has decreased during the last twenty years. The trade has been supplied only by radically adulterating the pure goods, or by manufacturing a product entirely from foreign materials. It is conservatively estimated that seven-eighths of what is sold as maple sirup and sugar is a spurious article. Most of the fabrications are entirely harmless, but they are not the real thing. Those fortunate enough to have eaten the genuine article will always demand it, and conditions should be such that they may get it, if they are willing to pay the price.

The fault does not lie with the producers, those who tap the trees and reduce the sap to sirup and sugar, but with the middlemen who buy the sugar and mix and adulterate it most profitably for themselves. The extent of this adulteration is illustrated by the fact that while the amount of the raw product has decreased, the whole quantity sold has largely increased and its market price has been reduced. Of late years the price has fallen in direct relation to the decrease in the price of cane sugar.

The most common substitutes used in the adulteration of maple sugar and sirup are other sugars and glucose. Much of the so-called maple sirup on the market

is nothing but a combination of sweets with a little maple molasses added to give the maple flavor. There is also a maple sirup which contains no maple at all, but the flavor is obtained by adding to the compound an extract of hickory bark. This extensive adulteration forces the producers of pure maple sirup to compete with cheap imitations. The price of their raw product is kept down, and the forests of maple are not as profitable to their owners as they otherwise might be.

The consumer is entitled to pure goods, and the producer is entitled to have his sirup and sugar bought and used for what it is. The remedy is in the hands of the producers, and they can effect a change for the better in two ways. They can associate themselves in state and large local companies, and, by selling direct to consumers, cut out the middlemen; and they can also put their product on the market in the form not of sugar but of sirup, which is most in demand. The public will not object to paying a little higher price for guaranteed pure goods. The cost of making and handling sirup might be a little more than that of sugar, but the net returns would be larger, the public served, and the maple sugar industry profitably extended. The association plan has been adopted in Vermont with excellent results. Annual meetings are held, through whose influence improved methods of production have been adopted, a central market established, and a guarantee of absolute purity. In this way a trade of good proportions has been built up.

Thus heavenly hope is all serene,

But earthly hope, how bright soe'er,
Still fluctuates o'er this changing scene,
As false and fleeting as 'tis fair.

—Wordsworth.

Late Blight or Rot of Potatoes—a Warning to Potato Growers

Press Bulletin No. 267, of the Ohio Agricultural Experiment Station, prints the following:

The last blight fungus, *Phytophthora*, has already appeared this year at Wooster upon several areas. It does not occur every year in Ohio and even in the northeastern part of the state the occurrence of this fungus is so irregular that the practice of regular spraying for it has not become fixed. The *Phytophthora* prevailed to a certain extent in 1903 and was much more widespread in 1904, appearing in the vicinity of Wooster about August 15th of that year.

These conditions of previous occurrence, combined with the season, have prepared for an early reappearance of this late blight fungus the present year, and *the fungus was collected by the Assistant Pathologist in gardens near the Station, July 25, 1905.*

A widespread and destructive outbreak of this disease may occur in the state in any season with the fungus so prevalent. While most is to be feared if the weather is moist, the danger may be considerable where fungicides are not used upon the potato plants. In like manner the danger of rotting of the tubers is involved.

Potato growers are warned of the conditions, that spraying may be practiced by them; applications of standard Bordeaux mixture at intervals of two weeks are effective when the vines are well covered. This spray is made from four pounds of dissolved copper sulfate (blue vitrol) and four to five pounds of lime, in fifty gallons of water, according to the directions of the Station Spray Calendar Bulletin, No. 147.

The station botanist will be pleased to respond to inquiries, accompanied by specimens, to locate the blight; also in

respect to the features not made clear in the station bulletins.

O. S. U. Grange Meets

Grange No. 1620 of the Ohio State University met Saturday evening, December 9, and was called to order in the fourth degree by Worthy Master Price. The business of the evening consisted in the conferring of the third and fourth degrees upon some twenty candidates, and later the election of officers for the coming year. The results of the election were as follows: For Worthy Master, Professor Vivian; Overseer, A. S. Burgess; Lecturer, Dr. Gay; Steward, L. B. Lee; Asst. Steward, E. S. Guthrie; Lady Asst. Steward, Mrs. Fawcett; Chaplain, E. D. Galbraith; Secretary, L. M. Fox; Treasurer, J. L. Edmonds.

Don't overdo. Once a man went forth and scattered flattery indiscriminately. When he returned his office was crowded with persons who wanted to borrow money.—Poor Richard, Jr.

Colorado Practicing Forestry

The State to Create a Separate Department to Control its Forests and Help Build up its Industries.

Two political platforms in Colorado contain a declaration favoring the creation of a state department of forestry. This if carried into effect by the legislature will notably benefit both the state and forestry, since the general welfare of Colorado is peculiarly dependent upon the rigid care and protection of its forests. Almost one-third of the total area of that state, or 33,500 square miles, is woodland, of which about 20,000 square miles are covered with valuable timber. This is chiefly pine, although cedar, hemlock, spruce, fir and other species are also found in merchantable size and

quantity. But the greatest value of the Colorado forests is in their promotion of agriculture through irrigation. Already there are nearly 2,000,000 acres of farm lands under irrigation, but great stretches of country are still to be redeemed. This cannot be done unless the watersheds of the state in the mountains and hills are rigorously kept under forest cover.

The grazing and lumber industries, as now conducted, and the ravages of fires are against the forests. The lumbering and still more the grazing interests of the state are too valuable not to receive careful consideration. Each, and more particularly the latter, must be carefully and judiciously regulated with two ends in view—their own welfare and continuation, and the protection of the forests. As for fire, it is the same deadly enemy in Colorado as in other large forested areas, and restraining regulations must be enacted and enforced.

Forest preservation is a vast economic question intimately interwoven with many other matters of vital state concern, but it is a question with a distinct field for research and demands specialized inquiry, enactment, and jurisdiction. Hence the necessity for the creation of a state department of forestry. Through it all local work can most effectively be done, and it also furnishes an agency through which the state may come into closer touch with the National Bureau of Forestry and thus secure advice based on a wide range of investigation.

The federal government has put something over 3,000,000 acres of the public land on the watersheds under forest reserve. In addition, agents of the Bureau of Forestry have, within the past two years, made careful studies of both these reserves and other public forests of the state, to the end that the federal forest reserves may accomplish the greatest possible good. But 3,000,-

000 acres are a small part of the 21,440,000 acres of woodland in Colorado. All the remaining 10,000,000 or more acres are to a greater or less extent important in conserving the irrigation and farming future of the state. It is, therefore, fortunate that Colorado seems likely to handle its forests in this practical way, the only way by which the best results can be accomplished.

Such action will increase to twelve the number of states which have created separate departments of forestry. Yearly and daily the importance of understanding and guarding the forest, which stands in close relation to many and varied industries, is growing. Each state which adds the weight of its official action gives new impetus to the movement which aims to secure the largest usefulness of our forests in the interest of the public welfare. Other states, particularly those whose forests are among their greatest resources, could do nothing more practically beneficial to their future than quickly to follow the policy now demanded by the people of Colorado.

C. N. Mooney, 'oo B. Sc. (Agr.), Bureau of Soils, U. S. Department of Agriculture, Washington, D. C., is assistant in soil survey. Last spring Mr. Mooney assisted in the soil survey which was made near Columbus, Ohio.

The second session of the Graduate School of Agriculture will be held in the summer of 1906 at the College of Agriculture of the University of Illinois under the auspices of the Association of Agricultural Colleges and Experiment Stations and the University of Illinois. The first session of this school was held at the Ohio State University in the summer of 1902.

Grange Extension

BY F. A. DERTHICK,

Master of Ohio State Grange, in Annual Address.

Twenty-six new granges have been organized and reorganized and more new members have been added to those already established than in many previous years.

A fuller meaning of the grange has found lodgment in many thousands of hearts. The impulse to do nobler, live better, has found expression in many homes.

There are yet earnest men and women on our farms who have not yet heard of the opportunity to unite with an organization that appeals to the deepest sentiment of the heart. Earnest, aggressive work will bring them into the fold. Men and women with power to persuade should be sent to those people and urge them to go with us. This exhortation should, however, be tempered with a word of caution. The grange is a powerful organization and he who is invited to participate in its benefits should be possessed of sterling qualities of integrity, morality and good citizenship. When we obligate ourselves not to knowingly defraud or wrong a brother it includes the promise not to invite to our brotherhood those who are unworthy or undesirable. While we owe a duty to those outside our gates we owe a larger duty to those who have nourished our order in its times of weakness and made it what it is today.

"Man is the only creature endowed with the power of laughter; is he not the only one that deserves to be laughed at?"

Alumni Notes

Arthur G. Abbott, '99, B. Sc. (Agr.), is located near Wadsworth, O., R. R. No. 1, where he is running a dairy farm.

Charles C. Poindexter, '03, B. Sc. (Agr.), is teacher of nature study and chemistry and director of the Department of Agriculture in the Institute for the Colored Youth. His address is Cheyney, Pa.

J. C. Phillips, short course in Agriculture, is located near Medina, O., R. R. No. 2, where he is engaged as butter maker.

M. J. Persing, short course in Agriculture, is fruit and truck farmer at Clyde, O., R. R. No. 4.

N. P. Neill, '01, B. Sc. (Agr.), is with the Bureau of Soils, U. S. Department of Agriculture, Washington, D. C., where he is assistant in the soil survey.

C. O. Morton, short course in Agriculture, is running a dairy farm near Burton, O., R. R. No. 2.

A. S. Neale, '04, B. Sc. (Agr.), is located in Cleveland with headquarters at the Press building. Mr. Neale is editor of the Agricultural Department of the Newspaper Enterprise Association of the above city.

Prescott Milliman, short course in Agriculture, is farming near Milan, O., R. R. No. 1.

C. J. Miller, '98, B. S. (Agr.), whose address is Franklin, O., is running a stock farm near that place.

O. F. Meriam, ex-'06, is farming near Randolph, O.

B. W. Mangun, ex-'06, is now enrolled as student in the State Agricultural Col-

lege, Ft. Collins, Col. We hear that "Corporal" has been playing center on the regular team of that institution.

Agricultural News

Secretary Wilson in an address at the Washington meeting of the Association of Agricultural Colleges and Experiment Stations, promised to second their efforts to secure more funds for experimental purposes. It is a well known fact that the stations are greatly handicapped in their work on account of lack of funds, and we sincerely hope that the secretary will convince congress of the necessity of more liberal appropriations.

At the Missouri Agricultural College a four days session will be held from January 9 to 12, known as farmers week. The meeting is given under the auspices of the State Board of Agriculture and will be participated in by the Missouri Corn Growers Association, the Improved Live Stock Breeders Association and the Agricultural College. The convention promises to be one of great practical good to all who attend.

Edward M. Paxton, former chief justice of the Pennsylvania State Supreme Court, has willed the bulk of a fortune of \$3,000,000, to found and maintain a College of Agriculture. He deplored the dispositions of young men to desert the country for the city and attributed this to lack of education in agriculture.

Dr. Alonzo D. Melvin, chief of the bureau of animal industry, who succeeded Dr. Salmon, has been connected with the bureau since 1896 and is well qualified for his new duties. He is a graduate of the University of Chicago Veterinary College, and is also well informed as to the stock interests of the West, in which field a large part of his work lies.

The University of Porto Rico has 100 acres of farm land which are to be used for practical instruction in agriculture. A bureau of agriculture is soon to be established at that plate.

The Southern Cotton Growers Association is reported to have secured growers pledges to hold 3,000,000 bales for higher prices, and to reduce next year's acreage considerably.

University News

The complete foot ball score for the season of 1905 is as follows:

O. S. U.....	6	Otterbein	6
O. S. U.....	28	Heidelberg	0
O. S. U.....	40	Muskingum	0
O. S. U.....	17	Wittenburg	0
O. S. U.....	6	Denison (forf't)	0
O. S. U.....	32	DePauw	6
O. S. U.....	0	Case	0
O. S. U.....	23	Kenyou	0
O. S. U.....	0	Michigan	40
O. S. U.....	36	Oberlin	0
O. S. U.....	15	Wooster	0
O. S. U.....	0	Indiana	11

That it has been a very satisfactory season is evidence by statements to that effect from professors, coaches, managers and students. While we say that the general feeling is good, still we hear unwarranted criticisms abroad which center upon the coaches, Mr. Sweatland and Mr. Bingham. While there have been a few unpleasant features, the real causes of which have not reached the student body, they (the students) take this as a time for "knocking" and, as is natural in such cases, alight first upon the coaches. The latter have endeavored to build up a team for the future and not confine their time and efforts to "grandstand" plays. Hence these unjust criticisms.

The last meeting of the Columbus Horticultural Society for the year was held Saturday, December 23, in Hor-

tical Hall. Besides the usual program the reports of officers and committees were presented, and the election of officers for the ensuing year was held.

One of the good things to remember about the State-Indiana game on Thanksgiving day was the cross-country run, covering a distance of four and one-half miles. First, of course, was Yeagle, time, twenty-two minutes and twenty-seven second; second came Thomas, Drackett third. The course ended with two laps around the gridiron and by the time Indiana's first and only survivor of the race came into sight, Ohio's second and third man had nearly completed their second lap. If Indiana did win the foot ball game, she lost in the run and lost badly.

The basket ball schedule has not, as yet, been completed but it is almost a certainty that a game will be had with all of the Big Six teams except Wesleyan. The first game of the season will be with Wittenburg on the evening of January 6.

On November 18 the Agricultural College defeated the Veterinary College in a plucky game of foot ball with a score of 11 to 0. We wish to thank Captain Van Voorhis of the "Ags.," also W. L. Slate, manager, for the work rendered by them for the team.

Book Reviews

A SELF-SUPPORTING HOME. By Kate V. Saint Maur. 344 pp. Fully illustrated. Cloth, 12 mo., \$1.75 net. The MacMillan Publishing Co., New York.

"A Self-Supporting Home" will prove a revelation to country people who find their homes a source of expense instead

of profit. There is no theorizing in this book. Facts and figures are given from the actual expenses of a woman who has become eminently successful in the raising of poultry and pet stock and the running of a general farm.

From cover to cover the book is full of practical suggestions of ways and means within the reach of every one. In narration, however, the book departs decidedly from the dry form usual to the thoroughly practical book, being told in entertaining story fashion, and in terms and language fitted to the comprehension of the beginner.

NEW CREATIONS IN PLANT LIFE. By W. S. Harwood. 368 pp., cloth, 12 mo., \$1.75 net. The MacMillan Publishing Co., 66 Fifth avenue, New York.

Much of the wonderful work of Mr. Burbank has been published from time to time but Mr. Harwood's book is the first full account of his life and work that has been given the public.

While the subject matter has, in many ways, been presented in a very unsatisfactory manner, the book is, nevertheless, full of inspiration and promise for the horticulturalist and farmer.

With the way now pointed out the creation of new forms of plant life and the improvement of old ones by plant breeding, will undoubtedly have a constantly increasing fascination for the student of nature.

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First prize two-year-old—Doyen (57661) 40577.

GREAT PARIS SHOW.

First prize four-year-old—Ravissant (46514) 40539.

First prize three-year-old—Fusain (53895) 40544.

First prize two-year-old—Monaco (58631) (remains in France).

GREAT ANNUAL SHOW OF THE SOCIETE HIPPIQUE PERCHERONNE.

First prize four-year-old—Ravissant (46514) 40539.

First prize three-year-old—Flambart (54628) 40543.

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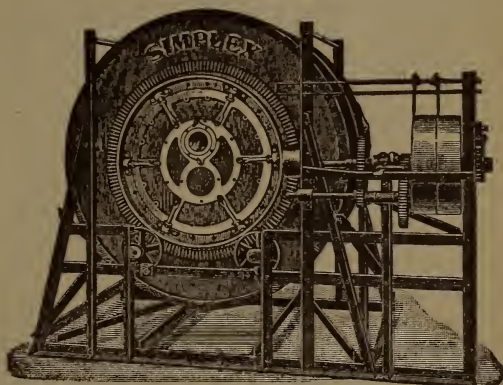
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